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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,422	12/12/2000	Yoshihisa Furuta	Q 62228	7788

7590 07/06/2004

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EXAMINER	
MUSSER, BARBARA J	
ART UNIT	PAPER NUMBER
1733	

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/719,422	FURUTA ET AL.	
	Examiner	Art Unit	
	Barbara J. Musser	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 2* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 2* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mostafazadeh et al. in view of Lin et al. and Aizawa et al. '954 and as evidenced by High Performance Films.

Mostafazadeh et al. discloses adhering an adhesive tape to a lead frame having a chip mounted therein, encapsulating the chip and connectors with molding resin, and stripping the tape away.(Figures 5-7; Col. 1, ll. 63- Col. 2, ll. 19) The reference does not disclose the specifics of the adhesive tape but does disclose the tape can be polyimide.(Col. 3, ll. 46). Lin et al. discloses a method of forming chips which are attached to traces and encapsulated wherein the chips and traces are applied to a Kapton film.(Col. 2, ll. 64- Col. 3, ll. 2) It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a Kapton film as the basis for the adhesive tape in Mostafazadeh et al. since Lin et al. discloses Kapton film is a well-known film in this art and since Mostafazadeh et al. discloses that any polyimide film can be used.(Col. 3, ll. 46) Neither reference discloses the thermal shrinkage of the tape. High Performance Films discloses that Kapton has thermal shrinkage of 0.10% at

200C. Thus one in the art would understand the film of Lin et al. in the process of Mostafazadeh et al. would have a shrinkage of less than 3%.

While Mostafazadeh et al. does not specifically disclose using a mold to form the resin encapsulated chips, the reference does disclose that a molded plastic casing is formed over the chip.(Col. 2, ll. 13-14) One in the art would understand that a molded casing was made using a mold.

Neither reference discloses the type of adhesive used. Aizawa et al. discloses an adhesive used as a carrier for articles such as semiconductor chips for temporary fixing(Col. 5, ll. 3-8) The adhesive has a low adhesive strength after heating since the adhesive expands on heating reducing the adhesive strength.(Abstract; Col. 2, ll. 50-53) It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the adhesive of Aizawa et al. on the film of Lin et al. in the process of Mostafazadeh et al. since the adhesive can hold electronic parts securely and can be easily removed(Col. 1, ll. 22-42) which is important since the chip bottoms of Mostafazadeh et al. can be bonded to other materials and particularly since the adhesive is known in the electronic arts.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mostafazadeh et al. in view of Lin et al., Aizawa et al., and High Performance Films as applied to claim 1 above, and further in view of Oida et al.(WO 98/35382) U.S. Patent 6,291,274 is considered an English language translation and all column and line numbers refer to it.

The references cited above do not disclose replacing the lead frame of Mostafazadeh et al. with a tape carrier. Oida et al. discloses tape carriers can be used in place of lead frames when encapsulating chips in resin.(Col. 10, ll. 39-45) It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the lead frame of Mostafazadeh et al. with a tape carrier since such is well-known and conventional in the art as shown for example by Oida et al.(Col. 10, ll. 39-45)

Response to Arguments

4. Applicant's arguments filed 4/16/04 have been fully considered but they are not persuasive.

Regarding applicant's argument that Aizawa et al. '954 and Mostafazadeh et al. belong to different technical fields, Mostafazadeh et al. uses an adhesive tape to hold the chip in place but does not describe the adhesive. One in the art would look to adhesives used in fixing electronic parts that would have the properties desired for a tape used to hold a chip in place, namely easy removability after injecting the resin. While the two references are not directed to the same thing, they are directed to different aspects of the same process, i.e. holding a chip in place during injection molding.

5. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Mostafazadeh et al. is silent as to the specifics of the adhesive used to hold the chips in place during injection molding, but the requirements for such an adhesive are obvious- easy removability combined with strength. It would have been obvious to one of ordinary skill in the art at the time the invention was made to look for an adhesive having these characteristics particularly one such as Aizawa et al. which has these characteristics and is which is known to be used to temporarily hold electronic parts in place.(Col. 1, ll. 22-23)

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Barbara J. Musser** whose telephone number is **(571) 272-1222**. The examiner can normally be reached on Monday-Thursday; alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571)-272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BJM

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